In the claims:

1. (amended) A waterproof digital electronic camera system comprising:

a digital electronic camera having a digital electrical signal interface for downloading image information from the camera;

a converter converting signals ~~upon~~ from the digital electrical signal interface to radiation signals; and

an enclosure hermetically sealing water and air tight both the digital electronic camera and the converter, the enclosure being transparent in at least an area of (i) an optical lens of the digital electronic camera so that pictures may be taken through the enclosure, and (ii) a radiation signal output of the converter so that radiation signals containing image information are communicable exterior to the ~~camera~~ the enclosure; the enclosure further comprising an inner casing and an outer casing; said digital electronic camera being disposed within said inner casing; said inner casing being disposed within said outer casing.

2. (original) The waterproof digital electronic camera system according to claim 1

wherein the converter is converting signals upon the digital electrical signal interface to optical frequency radiation signals; and

wherein the enclosure is transparent to the optical radiation signal output of the converter.

3. (original) The waterproof digital electronic camera system according to claim 1

wherein the converter is converting signals upon the digital electrical signal interface to radio frequency radiation signals; and

wherein the enclosure is transparent to the radio frequency radiation signal output of the converter.

4. The waterproof digital electronic camera system according to claim 1

wherein the digital electronic camera has a serial digital electrical signal interface; and

wherein the converter is converting signals upon the serial digital electrical signal interface to serial signals radiating in space.

5. (original) The waterproof digital electronic camera system according to claim 4

wherein the digital electronic camera has an RS-232 serial digital electrical signal interface; and

wherein the converter is converting signals upon the RS-232 serial digital electrical signal interface to serial signals radiating in space.

6. (original) The waterproof digital electronic camera system according to claim 5 wherein the converter comprises:

an RS-232 to TTL signal converter converting RS-232 serial digital electrical signals to Transistor-Transistor Logic (TTL) serial digital electrical signals;

an encoder-decoder converting the TTL electrical signals to electrical signals that are suitably encoded so as to be converted to optical signals for further transmission; and

an electrical-to-optical signal converter converting the encoded electrical signals to optical signals, and transmitting the optical signals through the at least one transparent area of the enclosure.

7. (original) The waterproof digital electronic camera system according to claim 1 wherein the digital electronic camera further comprises:

a shutter circuit for activating the shutter, to which shutter circuit electrical connection may suitably be made;

and wherein the waterproof digital electronic camera system further comprises:

a trigger circuit, also within the enclosure and electrically connected to the shutter circuit of the digital electronic camera, responsive to a stimulus external to the enclosure to produce an electrical signal responsively to which the shutter circuit will activate the shutter of the digital electronic camera.

8. (original) The waterproof digital electronic camera system according to claim 7 wherein the trigger circuit comprises:

a Hall-effect sensor responsive to a magnetic field to produce a signal output; and

an amplifier amplifying the signal output of the Hall-effect sensor for application to the shutter circuit as the electrical signal responsively to which the shutter circuit will activate the shutter of the digital electronic camera.

9. (original) The waterproof digital electronic camera system according to claim 7 wherein the trigger circuit comprises:

a reed switch responsive to a magnetic field to gate an electrical signal responsively to which the shutter circuit will activate the shutter of the digital electronic camera.

10. (original) The waterproof digital electronic camera system according to claim 1 wherein the digital electronic camera further comprises:

a rechargeable power source for providing power to at least the digital electronic camera and the converter;

and wherein the waterproof digital electronic camera system further comprises:

a charging circuit, also within the enclosure, for converting some stimuli external to the enclosure to power suitable to recharge the rechargeable power source.

11. (original) The waterproof digital electronic camera system according to claim 10 wherein the rechargeable power source comprises:

a battery.

12. (original) The waterproof digital electronic camera system according to claim 9

wherein the battery is located within a cavity sealed to the exterior of the camera by a frangible membrane;

wherein the membrane may be broken, the battery replaced, and the cavity resealed.

13. (original) The waterproof digital electronic camera system according to claim 10 wherein the charging circuit comprises:

an inductive coil in which alternating current is induced by an oscillatory magnetic field external to the enclosure;

a bridge rectifier rectifying the alternating current of the inductive coil to produce a direct current; and

a regulating and charging circuit conditioning the direct current into power to charge the rechargeable power source.

14. (original) The waterproof digital electronic camera system according to claim 1 wherein the enclosure comprises:

a potting of the camera and the converter in an optically clear dielectric material.

15. (original) The waterproof digital electronic camera system according to claim 14 wherein the optically clear dielectric potting material is drawn from the group consisting essentially of:

plastic;

polyester resin;

silicone rubber;

hydrocarbon liquids; and

mineral oil.

16. (original) The waterproof digital electronic camera system according to claim 14 wherein the optically clear dielectric potting material is drawn from the group consisting essentially of:

polycarbonate plastic; and

ethyl alcohol.

17. (original) The waterproof digital electronic camera system according to claim 1 wherein the enclosure contains only solid masses, and there is essentially no gas whatsoever within the enclosure nor within the camera or the converter that are both within the enclosure;

wherein the camera and the converter are potted.

18. (original) The waterproof digital electronic camera system according to claim 1 wherein the enclosure contains both solid and liquid masses, only, and there is essentially no gas whatsoever within the enclosure nor within the camera that is within the enclosure;

wherein the liquid is optically clear dielectric, therein interfering neither with the optical functions of the camera nor the electrical functions of the camera and of the converter.

19. (original) The waterproof digital electronic camera system according to claim 1 further comprising:

fluid completely filling the enclosure, the fluid being non-interfering with (i) optical communication through the enclosure, including optical communication to the lens of the digital electronic camera, and within the digital electronic camera, (ii) electrical communication through the enclosure, and (iii) electrical function of all circuits within the enclosure, including the digital electronic camera.

20. (original) The waterproof digital electronic camera system according to claim 19 wherein the fluid comprises:

ethyl alcohol.

21. (amended) A method of communicating with a sealed digital electronic camera comprising:

hermetically housing a digital electronic camera having a digital electrical signal interface for downloading image information from the camera in a double walled housing that is optically transparent in at least an area of a lens of the digital electronic camera so that pictures may be taken through the housing:

converting signals ~~upon~~ from the digital electrical signal interface of the digital electronic camera to radiation signals; and

radiatively communicating the radiation signals through the housing.

22. (original) The method according to claim 21

wherein the converting is of signals upon the digital electrical signal interface of the digital electronic camera to optical radiation signals; and

wherein the radiatively communicating is of the optical radiation signals through the housing.

23. (original) The method according to claim 21

wherein the converting is of signals upon the digital electrical signal interface of the digital electronic camera to radio frequency radiation signals; and

wherein the radiatively communicating is of the radio frequency radiation signals through the housing.

24. (original) The method according to claim 21 used with a digital electronic camera having a serial digital electrical signal interface wherein the converting is of electrical signals upon the serial digital electrical signal interface to serial radiation signals.

25. (original) The method according to claim 21 used with a digital electronic camera having an RS-232 serial digital electrical signal interface wherein the converting is of electrical signals upon the RS-232 serial digital electrical signal interface to serial optical signals.

26. (original) The method according to claim 21 wherein the converting comprises:

first-converting RS-232 serial digital electrical signals to Transistor-Transistor Logic (TTL) serial digital electrical signals in a RS-232 to TTL signal converter;

second-converting the TTL electrical signals to electrical signals that are suitably encoded so as to be converted to optical signals for further transmission in an encoder-decoder; and

third-converting the encoded electrical signals to optical signals, and transmitting the optical signals through the enclosure, in an electrical-to-optical signal converter.

27. (original) The method according to claim 21 further comprising:

activating a shutter in and by a shutter circuit to which electrical connection may suitably be made; and

triggering the shutter circuit in and by a trigger circuit, also within the enclosure and electrically connected to the shutter circuit of the digital electronic camera, responsive to a stimulus external to the housing.

28. (original) The method according to claim 27 further wherein the triggering of the shutter circuit is in and by a Hall-effect trigger circuit.

29. (original) The method according to claim 27 further wherein the triggering of the shutter circuit is in and by a reed switch trigger circuit.

30. (original) The method according to claim 21 further comprising:

providing power to at least the digital electronic camera with a rechargeable power source; and

converting some stimulus external to the enclosure into power to recharge the rechargeable power source.

31. (original) The method according to claim 30 wherein the converting comprises:

inducing an alternating current in an inductive coil inside the housing;

rectifying in a bridge rectifier the alternating current of the inducing to produce a direct current; and

regulating and conditioning the direct current into power to charge the rechargeable power source.

32. (original) The method according to claim 21 further comprising:

filling the housing of the digital electronic camera with a fluid that is non-interfering with (i) optical communication through the enclosure, including optical communication to the lens of the digital electronic camera, and within the digital electronic camera, (ii) electrical communication through the enclosure, and (iii) electrical function of any and all circuits within the housing.

33. (amended) A digital electronic camera CHARACTERIZED IN THAT the optics and electronics of the camera are permanently within a solid mass of optically clear dielectric material, and the camera contains essentially no gases whatsoever;

wherein the camera may suitably be immersed to a ~~great~~ depth of at least a mile within the ocean without crushing.

34. (original) The digital electronic camera according to claim 33 FURTHER CHARACTERIZED IN THAT the camera is potted inside and out in a solid block of said optically clear dielectric material.

35. (original) The digital electronic camera according to claim 34 FURTHER CHARACTERIZED IN THAT the camera is potted in a solid block of plastic.

36. (original) The digital electronic camera according to claim 35 FURTHER CHARACTERIZED IN THAT the camera is potted in a solid block of polycarbonate.

37. (original) The digital electronic camera according to claim 34 FURTHER CHARACTERIZED IN THAT the camera is within an optically clear liquid dielectric material, the camera and its liquid being held within a liquid-tight exterior case that is itself optically clear in at least a region where an image is received through the case and into a lens of the camera.

38. (original) The digital electronic camera according to claim 37 FURTHER CHARACTERIZED IN THAT the camera is within ethanol.

39. (original) The digital electronic camera according to claim 34 FURTHER CHARACTERIZED IN THAT communication of image data from the camera to the exterior of the solid mass is via an optical link.

40. (original) The digital electronic camera according to claim 34 FURTHER CHARACTERIZED IN THAT communication of an actuation signal to a shutter of the camera is via a magnetic link.

41. (original) The digital electronic camera according to claim 34 FURTHER CHARACTERIZED IN THAT communication of power to the camera is via inductive coupling.

42. (new) A waterproof digital electronic camera system comprising:

a digital electronic camera having a digital electrical signal interface for downloading image information from the camera;

a converter converting signals from the digital electrical signal interface to radiation signals; wherein the converter is converting signals from the digital electrical signal interface to serial signals radiating in space;

a shutter circuit for activating the shutter, to which shutter circuit electrical connection may suitably be made;

a trigger circuit, also within the enclosure and electrically connected to the shutter circuit of the digital electronic camera, responsive to a stimulus external to the enclosure to produce an electrical signal responsively to which the shutter circuit will activate the shutter of the digital electronic camera;

a rechargeable power source for providing power to at least the digital electronic camera and the converter;

a charging circuit, also within the enclosure, for converting some stimuli external to the enclosure to recharge the rechargeable power source; and

an enclosure hermetically sealing water and air tight both the digital electronic camera and the converter, the enclosure being transparent in at least an area of (i) an optical lens of the digital electronic camera so that pictures may be taken through the enclosure, and (ii) a radiation signal output of the

converter so that radiation signals containing image information are communicable exterior to the enclosure.

43. (new) The waterproof digital electronic camera system according to claim 42

wherein the digital electronic camera has an RS-232 serial digital electrical signal interface; and

wherein the converter is converting signals from the RS-232 serial digital electrical signal interface to serial signals radiating in space.

44. (new) The waterproof digital electronic camera system according to claim 43 wherein the converter comprises:

an RS-232 to TTL signal converter converting RS-232 serial digital electrical signals to Transistor-Transistor Logic (TTL) serial digital electrical signals;

an encoder-decoder converting the TTL electrical signals to electrical signals that are suitably encoded so as to be converted to optical signals for further transmission; and

an electrical-to-optical signal converter converting the encoded electrical signals to optical signals, and transmitting the optical signals through the at least one transparent area of the enclosure.

45. (new) The waterproof digital electronic camera system according to claim 42 wherein the trigger circuit comprises:

a Hall-effect sensor responsive to a magnetic field to produce a signal output; and

an amplifier amplifying the signal output of the Hall-effect sensor for application to the shutter circuit as the electrical signal responsively to which the shutter circuit will activate the shutter of the digital electronic camera.

46. (new) The waterproof digital electronic camera system according to claim 42 wherein the trigger circuit comprises:

a reed switch responsive to a magnetic field to gate an electrical signal responsively to which the shutter circuit will activate the shutter of the digital electronic camera.

47. (new) The waterproof digital electronic camera system according to claim 42 wherein the rechargeable power source comprises:

a battery.

48. (new) The waterproof digital electronic camera system according to claim 47

wherein the battery is located within a cavity sealed to the exterior of the camera by a frangible membrane;

wherein the membrane may be broken, the battery replaced, and the cavity resealed.

49. (new) The waterproof digital electronic camera system according to claim 42 wherein the charging circuit comprises:

an inductive coil in which alternating current is induced by an oscillatory magnetic field external to the enclosure;

a bridge rectifier rectifying the alternating current of the inductive coil to produce a direct current; and

a regulating and charging circuit conditioning the direct current into power to charge the rechargeable power source.

50. (new) A method of communicating with a sealed digital electronic camera comprising:

hermetically housing a digital electronic camera having a digital electrical signal interface for downloading image information from the camera in a housing that is optically transparent in at least an area of a lens of the digital electronic camera so that pictures may be taken through the housing:

converting signals from the digital electrical signal interface of the digital electronic camera to radiation signals; and

radiatively communicating the radiation signals through the housing:

first-converting RS-232 serial digital electrical signals to Transistor-Transistor Logic (TTL) serial digital electrical signals in a RS-232 to TTL signal converter;

second-converting the TTL electrical signals to electrical signals that are suitably encoded so as to be converted to optical signals for further transmission in an encoder-decoder;

third-converting the encoded electrical signals to optical signals, and transmitting the optical signals through the enclosure, in an electrical-to-optical signal converter.

activating a shutter in and by a shutter circuit to which electrical connection may suitably be made;

triggering the shutter circuit in and by a trigger circuit, also within the enclosure and electrically connected to the shutter circuit of the digital electronic camera, responsive to a stimulus external to the housing

providing power to at least the digital electronic camera with a rechargeable power source;

converting some stimulus external to the enclosure into power to recharge the rechargeable power source.

51. (new) The method according to claim 50 wherein the converting comprises:

inducing an alternating current in an inductive coil inside the housing;

rectifying in a bridge rectifier the alternating current of the inducing to produce a direct current; and

regulating and conditioning the direct current into power to charge the rechargeable power source.

52. (new) The method according to claim 50 further wherein the triggering of the shutter circuit is in and by a Hall-effect trigger circuit.

53. (new) The method according to claim 50 further wherein the triggering of the shutter circuit is in and by a reed switch trigger circuit.

54. (new) A digital electronic camera CHARACTERIZED IN THAT the optics and electronics of the camera are permanently within a solid mass of optically clear dielectric material, and the camera contains essentially no gases whatsoever;

wherein the camera may suitably be immersed to a depth of at least a mile within the ocean without crushing;

wherein the camera is potted inside and out in a solid block of said optically clear dielectric material;

wherein the camera is within an optically clear liquid dielectric material;

wherein the camera and its liquid are held within a liquid-tight exterior case that is itself optically clear in at least a region where an image is received through the case and into a lens of the camera;

wherein image data is communicated from the camera to the exterior of the solid mass;

wherein an actuation signal is communicated to a shutter of the camera from the exterior of the solid mass;

wherein the power source for the camera is rechargeable; and

wherein power is communicated to the power source from the exterior of the solid mass.

55. (new) The digital electronic camera according to claim 54 FURTHER CHARACTERIZED IN THAT said optically clear liquid dielectric material is ethanol.

56. (new) The digital electronic camera according to claim 54 FURTHER CHARACTERIZED IN THAT communication of the image data is via an optical link.

57. (new) The digital electronic camera according to claim 34 FURTHER CHARACTERIZED IN THAT communication of the actuation signal is via a magnetic link.

58. (new) The digital electronic camera according to claim 34 FURTHER CHARACTERIZED IN THAT communication of power to the power source is via inductive coupling.